BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Foundation Diploma in Engineering Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Electrical/Electronic Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Digital Engineering Pearson BTEC International Level 3 Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Diploma in Aeronautical Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Electrical/Electronic Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Digital Engineering Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Aeronautical Engineering
Unit number and title	**Unit 36: Programmable Logic Controllers**
Learning aim(s)	**B:** Explore programming structures and methods to control Programmable Logic Controllers
Assignment title	Programming PLCs
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You have been working as the sole engineer at a small hydroelectric company. The directors of the company are looking to upgrade the controller system for the automated running of one of the turbines. You have been asked to investigate, design and develop a PLC system for the turbine. The directors want you to prepare a report that can be given to a range of staff at the company who are not engineers.

Task 1	As you have now researched two existing systems, the directors have asked you to investigate further using a research and development grant they have been awarded. You are to use example programs to investigate how PLC instructions are used to efficiently control system outputs. Produce a report critically analysing how each example PLC program makes use of PLC instructions. For each application you should discuss the use of the following features in PLC, annotating diagrams and structures where appropriate: • Integrate Development Environments • Ladder diagrams • Statement listing • Functional diagrams • Graphical programming languages • Mimic diagrams • Sequential function charts (SFCs) • Timers • Counters • Motion Comment on the efficiency of the programs, commenting on the use of subroutines and procedures.
Checklist of evidence required	A report on the use of PLC features including timers, counters and motion, as well as ladder diagrams, statement listings, functional diagrams, source code, mimic diagrams and sequential function charts.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
36/B.P2	Explain, using example programs, how PLC instructions including timers and counters are used to control system outputs.
36/B.M2	Discuss accurately, using example programs, how PLC instructions including timers and counters are used to control system outputs.
36/B.D2	Critically analyse, using example programs, how PLC instructions including timers and counters are used to efficiently control system outputs.